IN THE CLAIMS

1. (Original) A process comprising:

physical vapor deposition (PVD) forming a refractory metal silicide first film above a conductive plug;

forming a refractory metal silicide nitride second film above the refractory metal silicide first film; and

PVD forming a refractory metal third film above the refractory metal silicide nitride second film.

2.(Original) The process according to claim 1, wherein forming the first film, forming the second film, and forming the third film are carried out in a single tool.

3.(Original) The process according to claim 1, wherein the conductive plug includes a characteristic dimension, and wherein PVD forming a refractory metal third film is carried out under conditions to cause an average grain size therein, wherein the average grain size is larger than the conductive plug characteristic dimension.

4.(Original) The process according to claim 1, wherein the conductive plug includes a characteristic dimension W, and wherein forming the refractory metal third is carried out under conditions to cause an average grain size therein, and wherein 0.1W = = 10W.

5.(Original) The process according to claim 1, wherein PVD forming a refractory metal silicide first film above a conductive plug, includes forming a refractory metal silicide first film that has a melting point above about 900° C.

6.(Original) The process according to claim 1, wherein PVD forming a refractory metal silicide first film includes forming a refractory metal silicide first film, wherein the silicide is MSix, wherein the refractory metal is M and wherein $0 < x = 3$.

7.(Original) The process according to claim 1, wherein forming an amorphous refractory metal silicide nitride second film includes reactive PVD forming from a refractory metal silicide target, and wherein the amorphous metal silicide nitride second film is MNySix, wherein the refractory metal is M, wherein $0 < x = 3$, and wherein $0 < y = 1$.

8.(Original) The process according to claim 1, wherein forming an amorphous refractory metal silicide nitride second film includes sputtering a refractory metal silicide target in the presence of nitrogen, wherein the refractory metal silicide target includes a composition of MSix, wherein M is selected from Ta, TaW, TaWTi, TaMo, TaMoTi, TaHf, TaHfTi, W, WTi, WMoTi, WHf, WHfTi, Mo, MoTi, MoHf, MoHfTi, and HfTi, and combinations thereof, and wherein $0 < x = 3$.

9.(Original) The process according to claim 1, wherein the process further includes:

forming a salicide structure from the refractory metal silicide first film and the conductive plug.

10.(Original) The process according to claim 1, wherein the process further includes:

rapid thermal processing the refractory metal silicide first film and the conductive plug under conditions to form a salicide structure; and

thermal processing the amorphous refractory metal silicide nitride second film under conditions to substantially resist migration of nitrogen therefrom.

11.(Original) A process comprising:

physical vapor deposition (PVD) forming a refractory metal silicide first film above a conductive plug, wherein the conductive plug includes a characteristic dimension, wherein the refractory metal silicide first film is selected from MSix, wherein M is selected from Ta, TaW, TaWTi, TaMo, TaMoTi, TaHf, TaHfTi, W, WTi, WMoTi, WHf, WHfTi, Mo, MoTi, MoHf, MoHfTi, and HfTi, and combinations thereof, wherein and $0 < x = 1.8$;

in the presences of nitrogen, reactive PVD forming an amorphous refractory metal silicide nitride second film above the refractory metal silicide first film, wherein the amorphous refractory metal silicide nitride second film is selected from TaNySix, TaWNySix, TaWTiNySix, TaMoNySix, TaMoTiNySix, TaHfNySix, TaHfTiNySix, WNySix, WTiNySix, WMoTiNySix, WHfNySix, WHfTiNySix, MoNySix, MoTiNySix, MoHfNySix, MoHfTiNySix, and HfTiNySix, and combinations thereof, wherein $0 < x = 2.5$, and wherein $0 < y = 1$; and

PVD forming a refractory metal third film above the amorphous refractory metal silicide nitride second film under conditions to cause an average grain size therein, wherein the average grain size is in a range from about one-tenth the characteristic dimension to larger than the conductive plug characteristic dimension.

12.(Original) The process according to claim 11, wherein forming the first film, forming the second film, and forming the third film are carried out in a single tool.

13.(Original) The process according to claim 11, wherein the process further includes:

forming a salicide structure from the refractory metal silicide first film and the conductive plug.

14.(Original) The process according to claim 11, wherein the process further includes:

rapid thermal processing the refractory metal silicide first film and the conductive plug under conditions to form a salicide structure; and

thermal processing the amorphous refractory metal silicide nitride second film under conditions to substantially resist migration of nitrogen therefrom.

15.(Original) A process comprising:

PVD forming a refractory metal silicide first film above a conductive plug;

PVD forming an titanium nitride second film above the refractory metal silicide first film; and

forming a refractory metal third film over the titanium nitride second film.

16.(Original) The process according to claim 15, wherein the conductive plug includes a characteristic dimension, and wherein forming the refractory metal third film is carried out under conditions to cause an average grain size therein, wherein the average grain size is larger than the conductive plug characteristic dimension.

17.(Original) The process according to claim 15, wherein the conductive plug includes a characteristic dimension and wherein forming the refractory metal third film is carried out under conditions to cause an average grain size therein, and wherein the average grain size is in a range from about one-tenth the characteristic dimension to larger than the characteristic dimension.

18.(Original) The process according to claim 15, wherein the process further includes:

forming a salicide structure from the refractory metal silicide first film and the conductive plug.

19.(Original) The process according to claim 15, wherein forming a tungsten third film over the titanium nitride second film is carried out by a chemical vapor deposition (CVD) process.

20.(Original) The process according to claim 15, wherein forming the first film, forming the second film, and forming the third film are carried out in a single tool.

21.(Original) The process according to claim 15, wherein forming the refractory metal silicide first film includes forming a solid solution refractory metal silicide first film, wherein the solid solution includes a refractory metal M according to MSix, and wherein $0 < x = 3$.

22.(Original) The process according to claim 15, wherein the process further includes:

forming a salicide structure from the refractory metal silicide first film and the conductive plug; and

forming a dielectric cap layer over the refractory metal third film.

23.(Original) The process according to claim 15, wherein the process further includes:

thermal processing the refractory metal silicide nitride second film under conditions to substantially resist migration of nitrogen therefrom; and

forming a nitride cap layer over the refractory metal third film.

24.(Original) The process according to claim 15, wherein the process further includes:

rapid thermal processing the refractory metal silicide first film and the conductive plug under conditions to form a salicide structure; and

thermal processing the refractory metal silicide nitride second film under conditions to substantially resist migration of nitrogen therefrom.

25. - 51. (Canceled)